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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,575	09/05/2003	Sang Kon Lee	CU-3350 RJS	7910

26530 7590 03/28/2006

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EXAMINER

WU, XIAO MIN

ART UNIT	PAPER NUMBER
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2629

DATE MAILED: 03/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/656,575	Applicant(s) LEE, SANG KON	
	Examiner XIAO M. WU	Art Unit 2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US Patent No. 5,526,012).

As to claim 1, Shibahara discloses a method for driving an LCD in which gate lines are sequentially scanned in 1 vertical period (see Figs. 4A, 4B), the method comprising the steps of: sequentially generating a plurality of gate pulse voltages having 1st to 3rd levels (e.g. V_{DD} , V_{EE1} , V_{EE2}) while being synchronized with vertical clock signal in said 1 vertical period; in invert driving (e.g. positive and negative V_s as shown in Fig. 2), dividing the generating period of the plural gate pulse voltages into a charge period (A-B, Fig. 4A-4D), a holding period (B-D, Fig. 4A-4D) and a discharge period I(D-E, Figs. 4A-4D) in respective polar periods corresponding to the 1st to 3rd levels of the plural gate pulse voltage, wherein the 3rd level (V_{EE1}) exists in a range between the 1st level (V_{DD}) and the 2nd level (V_{EE2}). It is noted that Shibahara does not specifically disclose converging pixel voltage of the discharge period to a common voltage level. However, one of ordinary skill will recognize when the pixel voltage is completely discharged, the pixel voltage would be equal to the common voltage such that the voltage difference between the pixel electrode voltage and the common electrode voltage would be zero. Thus, it would

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have been obvious to converging the pixel voltage of the discharge period to a common voltage so that the pixel data can be erased before applying the new data to the pixel electrode.

As to claim 3, Shibahara discloses the holding period is set as more than 2 horizontal periods (see Figs. 4A, 4B).

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibahara (US Patent No. 5,526,012) in view of Kusafuka et al. (US Patent No. 5,995,074).

As to claim 2, it is noted that Shibahara does not disclose the rising time of the 3rd level of the liquid crystal is smaller than the falling time of the 3rd level of the liquid crystal. Kusafuka is cited to teach a liquid crystal display device similar Shibahara. Kusafuka further discloses a gate pulse with rising time is smaller than the falling time (see Fig. 6). It would have been obvious to one of ordinary skill in the art to have modified Shibahara with the features of the gate pulse as taught by Kusafuka because Kusafuka provide a fast response time of liquid crystal display.

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The US 6,005,542 is cited to teach a liquid crystal display device with different gate voltage levels.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to XIAO M. WU whose telephone number is 571-272-7761. The examiner can normally be reached on 6:30 am to 4:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, RICHARD HJERPE, can be reached on 571-272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

X.W.
March 18, 2006


XIAO M. WU
Primary Examiner
Art Unit 2629